NAVIGATION STUDY FOR

JACKSONVILLE HARBOR, FLORIDA

DRAFT INTEGRATED GENERAL REEVALUATION REPORT II

AND

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

APPENDIX A

ATTACHMENT M

Hydrodynamic Modeling for Salt Marsh and Tributary Salinity and

Waterlevel (ADCIRC/MIKE)

TO BE INCLUDED.

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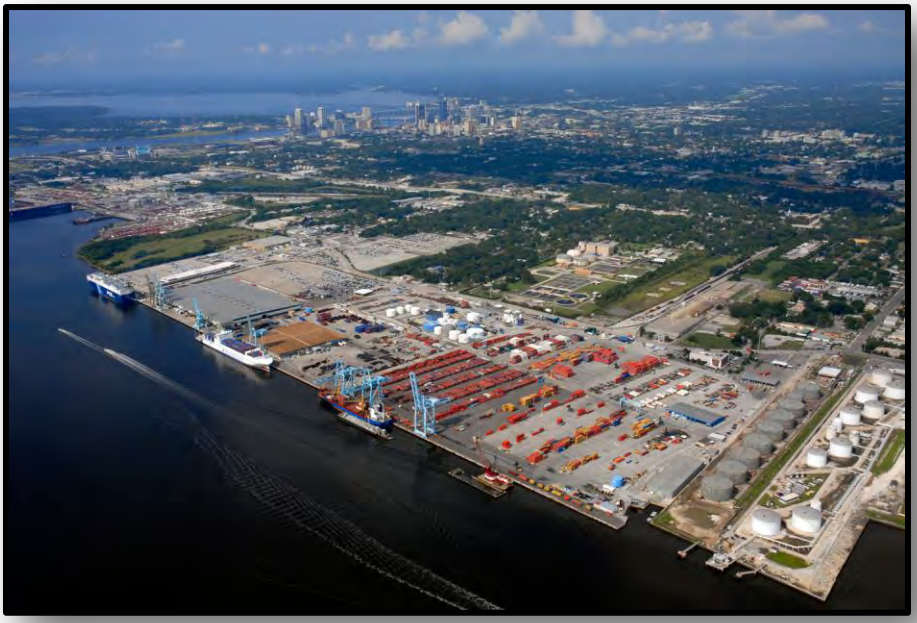
Value Engineering Study

TO BE INCLUDED.

U.S. ARMY CORPS OF ENGINEERS
JACKSONVILLE DISTRICT



113131 JACKSONVILLE HARBOR GENERAL REEVALUATION REPORT 2

VALUE ENGINEERING REPORT

May 2013, draft Decision Document Edition

DOD SERVICE: USACE **VALUE ENGINEERING OFFICER:** Jimmy Matthews, PE, CVS
CONTROL NO: CESAJ-VE-2013-00x

REPORT INFORMATION

VALUE ENGINEERING FIRM: U. S. Army Corps of Engineers
Jacksonville District
701 San Marco Blvd
Jacksonville, FL 32232-0019
(904) 232-1903

VALUE ENGINEERING WORKSHOPS CONDUCTED: 23-24 May 2011 and 24-24 January 2013

VALUE ENGINEERING STUDY TEAM LEADERS: Fred McAuley, Jr. and Jimmy Matthews, PE, CVS

VALUE ENGINEERING STUDY TEAM MEMBERS: Team member names and contact information are listed in Appendix B for the 2011 workshop and Appendix A for the 2013 workshop.

POINTS OF CONTACT: Jimmy Matthews, PE, CVS, Value Engineering Officer, CESAJ-EN-Q, (904) 232-2087

STUDY RESULTS:

Evidence of Unfettered Creativity: 23 ideas generated during 2011 workshop and 7 ideas generated during 2013 workshop

Number of Recommendations: 3

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EXECUTIVE SUMMARY

This Value Engineering (VE) Report documents the completion of VE studies conducted in May 2011 and January 2013. The 2013 study workshop was a combined Cost and Schedule Risk Analysis (CSRA) and VE workshop. Related VE analyses did not compute quantitative cost avoidances, however, the below ideas could yield significant savings and should be retained for Pre-construction, Engineering and Design Phase Value Engineering efforts.

Idea No.	Description
1	Separate O&M work from new work by doing maintenance contract immediately before the new work contract. Maintenance dredge berthing areas and dispose upland before new work. Then dredge new work and dispose offshore.
2	Develop adaptive mitigation plan for the project and implementation scheme based on meeting certain targets. Make agreements on which mitigation features will be implemented at the start of construction. Incorporate watershed approach as part of mitigation scheme. Install some tri-county nutrient reduction projects or buy some conservation lands and then monitor before determining final amounts and mix
3	Develop Additional Disposal Options - Bartram and Buck Island are identified for unsuitable material for the ODMDS and future O&M as needed. Evaluate additional Options.

INTRODUCTION

This report contains the results of the Value Engineering (VE) portion of a combined Cost and Schedule Risk Analysis (CSRA) and VE Workshop that was performed January 23-24, 2013 at the USACE Jacksonville District Office (see Appendix A –Workshop Agenda). The objective of the workshop was to incorporate VE analysis into the development of project measures and solution alternatives with focus on project functions and selected issues identified as part of the CSRA. This effort resulted in recommendations that can improve project performance, implementation and/or avoid initial or future costs.

VALUE METHODOLOGY

These workshops were conducted using the combined six-phase Value Engineering Job Plan as sanctioned by the Society of American Value Engineers International (SAVE) and the Cost Risk Register Checklist as implemented by the Cost, Schedule and Risk Agency Technical Review Center (MCX). This process, as explained below, was executed as part of daily activities as described in the Workshop Agenda. The VE Team was comprised of District project delivery team members. Rosters of workshop participants can be found in Appendix B. A Function Analysis System Technique (FAST) diagram was developed to map the hierarchy of project functions. It is displayed in Appendix C. Next, creative project improvement ideas were compiled and screened. Appendix D lists all ideas (Speculation List) with their disposition. The VE Workshop culminated in the development phase where ideas were documented as recommendations. Appendices F and G provide the related documentation.

Value Engineering Job Plan:

Information Phase

At the beginning of the study, the project team presents current planning and design status of the project. This includes a general overview and various project requirements. Project details are presented as appropriate. Discussion with the VE Team enhances the Team's knowledge and understanding of the project. A field trip to the project site may also be included as part of information gathering.

Function Analysis Phase

Key to the VE process is the Function Analysis Process. The process used for this VE Study was a combined effort. The CSRA Risk Register was developed by the VE team and areas noted where project functions could be used to define and or refine a project risk. Analyzing the functional requirements of a project is essential to assuring an owner that the project has been designed to meet the stated criteria and its need and purpose. The analysis of these functions is a primary element in a value study, and is used to develop alternatives. This procedure is beneficial to the team, as it forces the participants to think in terms of functions and their relative value in meeting the project's need and purpose. This facilitates a deeper understanding of the project.

Creativity Phase

The Creativity Phase involves identifying and listing creative ideas. The VE Team used the CSRA checklist to develop ideas that could identify and reduce cost and schedule risks. During this phase, the team participated in a brainstorming session to identify as many means as possible to provide the necessary project functions and reduce risks. Judgment of the ideas is not permitted in order to generate a broad range of ideas. The Cost and Schedule Risk Analysis Checklist that used for the creativity phase is located in Appendix D**.**

Evaluation Phase

The purpose of the Evaluation Phase was to systematically assess the potential impacts of ideas generated during the Creativity Phase relative to their potential for value improvement. Each idea is evaluated in terms of its potential impact to cost and overall project performance. Once each idea is fully evaluated, it is given a rating to identify whether it would be carried forward and developed as an alternative, presented as a design suggestion, dismissed from further consideration or is already being done.

Development Phase

During the Development Phase, ideas passing evaluation are expanded and developed into value alternatives. The development process considers such things as the impact to performance, cost, constructability, and schedule of the alternative concepts relative to the baseline concept. This analysis is prepared as appropriate for each alternative, and the information may include an initial cost and life-cycle cost comparisons. Each alternative describes the baseline concept and proposed changes and includes a technical discussion.

Presentation Phase

The VE Workshop concludes with a preliminary presentation of the value team's assessment of the project and value alternatives. The presentation provides an opportunity for the owner, project team, and stakeholders to preview the alternatives and develop an understanding of the rationale behind them.

PROJECT DESCRIPTION (1 March 2013 Report Synopsis)

Stage of Planning Process

This is the second General Reevaluation Report (GRR2). Alternative evaluation has been completed and a tentatively selected plan determined. The draft report is in preparation.

Study Authority

A resolution from the Committee on Public Works and Transportation, United States House of Representatives, dated February 5, 1992, provides the study authority as follows:

Resolved by the Committee on Public Works and Transportation of the United States House of Representatives, That the Board of Engineers for Rivers and Harbors, is requested to review the report of the Chief of Engineers on Jacksonville Harbor, Florida, published as House Document 214, Eighty-ninth Congress, First Session, and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable at the present time, in the interest of navigation and other purposes.

Energy and Water Development Appropriations, 2003, United States House of Representatives, House Report 107-681 and the Senate explanatory statement as delineated in the Congressional Record of January 15, 2003, pages S492 through S546. That Congressional language authorized the US Army Corps of Engineers to conduct a study as follows:

The amount provided for the Jacksonville Harbor, Florida, project includes $500,000 for the Corps of Engineers to complete plans and specifications for the proposed extension of the channel and initiate a General Reevaluation Report regarding further improvements.

The District, in coordination with South Atlantic Division, determined that further study in the nature of a General Reevaluation Report will fulfill the intent of the study authority and assess the extent of the Federal interest in participation in a solution to the identified navigation problems. The GRR for Jacksonville Harbor proceeded following execution of a Cost Sharing Agreement (CSA) and Project Management Plan (PMP).

Additional Study Guidelines

President Obama issued a “We Can’t Wait Initiative” to help modernize and expand 5 major ports in the United States, including Jacksonville Harbor. They issued the following statement:

One of the critical steps in modernizing and expanding the Port of Jacksonville is to finalize the federal feasibility study examining the costs and benefits of deepening the harbor. Nationally, feasibility studies take an average of 10 years and the expedited process announced today will shave 7 years off of that timeline, committing the federal government to finalize the study by April of 2013, years ahead of previous projections.

Study Area

Jacksonville Harbor is in Duval County, Florida and at the mouth of the St. Johns River where it empties into the Atlantic Ocean. The harbor project provides access to deep draft vessel traffic using terminal facilities located in the City of Jacksonville, Florida as shown in **Figure 1**.

FIGURE 1: LOCATION OF JACKSONVILLE HARBOR

Project Area

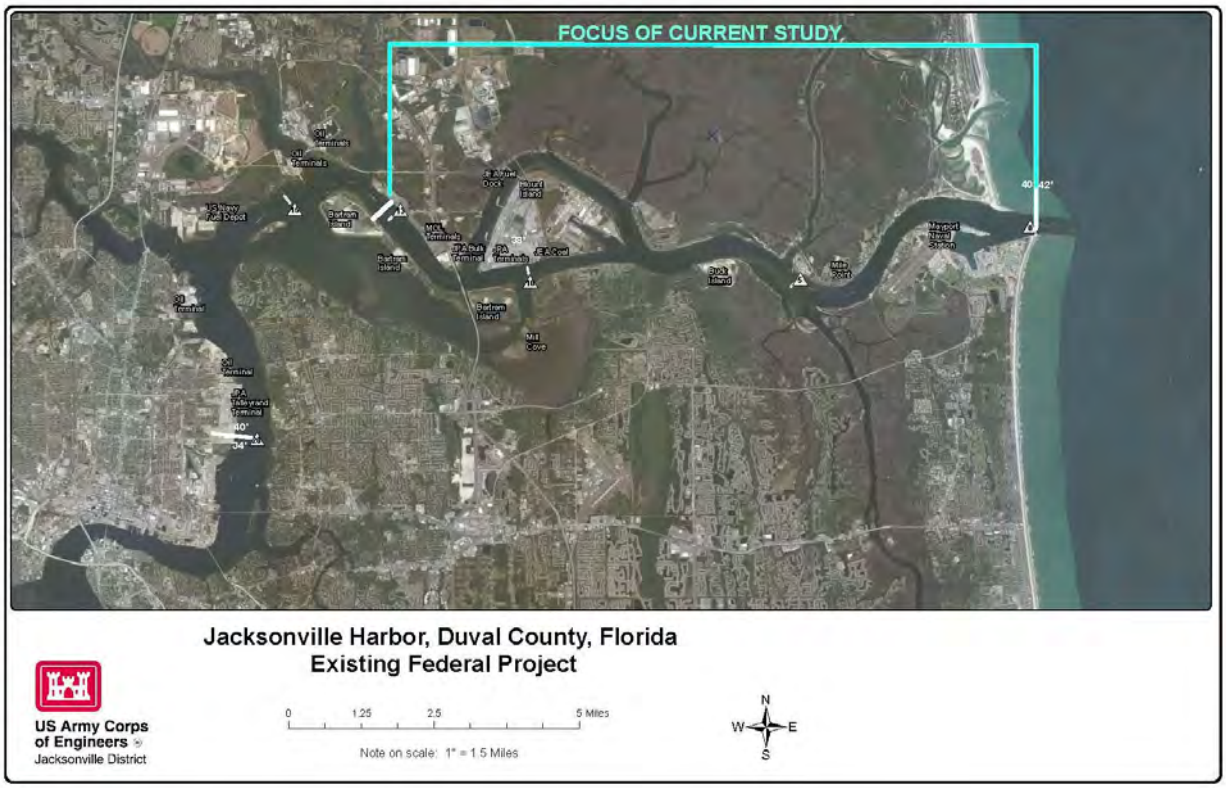
The project area consists of Jacksonville Harbor, which is part of the St. Johns River. The St. Johns River is the longest river in eastern Florida; it is approximately 310 miles long and flows from the south to the north into the Atlantic Ocean. Deep draft vessels transit Jacksonville Harbor from the Atlantic Ocean to downtown Jacksonville.

Jacksonville Harbor is dredged at regular intervals to the authorized depths of 40 feet until mile marker 20 (Figure 2). Cuts F and G of the Federal channel located along the west side of Blount Island have a project depth of 38 feet. Other areas in the vicinity have the following authorized depths. The Intracoastal Waterway (IWW) is periodically dredged to the authorized depth of 12 feet, plus 2 feet of allowable overdepth, to a depth of 14 feet. From river mile 20 to Commodore Point, the channel has a

depth of 34 feet. The channel has a depth of 30 feet from Commodore Point to the Florida East Coast (FEC) railroad bridge. The Arlington Cut channel located parallel to and east of the main channel between river miles 19 -21 and the old river channel around the north side of Blount Island between river miles 8 - 10 have a 30-foot depth over a 400-foot bottom width.

The primary concentration of port facilities on Jacksonville Harbor is between mile 8 and 20 of the Federal navigation project. Blount Island is a port terminal area between mile 8 and 11. The Jacksonville Port Authority (JAXPORT) terminal on Blount Island is 754 acres of container, Roll on - Roll off (RoRo) (including vehicles), breakbulk, liquid bulk, and general cargo. JAXPORT is the primary land owner for existing facilities in that area. From mile 11 to mile 14 along the northwest end of Dames Point, JAXPORT currently has a bulk cargo terminal, a cruise terminal, and a container terminal. The current site consists of 585 total acres, including the 158-acre TraPac Container Terminal. From mile 14 to 19 there are privately owned petroleum and bulk terminals and the navy fuel depot. In the mile 19 to 20 reach is the JAXPORT Talleyrand Terminal which has 173 acres for containerized, RoRo, Liquid Bulk, and General Cargo. The majority of benefiting vessels transit up to approximately River Mile 13 (Cut 45) as is shown in below figure

There are bridges and other air restrictions from the Atlantic Ocean to mile 20 of Jacksonville Harbor. The Blount Island overhead power cables have an authorized vertical clearance of 175 feet. The N.B. Broward (Dames Point Bridge) has vertical clearance of 174 feet. There are no utilities in the project area that would require relocation and there are no permits that have been issued or pending that would interfere with project modifications.



Non-Federal Sponsor

The Jacksonville Port Authority (Jaxport) is the non-federal sponsor.

Problems/Opportunities

Problems

1. Deep draft navigation problems and opportunities primarily involve either the problem of transportation cost inefficiency or the opportunity to reduce transportation costs.

2. Navigation concerns include two main problems; insufficient Federal channel depths and restrictive channel widths and turning basins.

3. Larger ships currently experience transportation delays due to insufficient Federal channel depths. To reach port terminals larger ships must be light loaded or cargo must be shipped using smaller vessels.

4. Light loading and use of smaller vessels require the vessel operator to forego potential transportation cost savings available from the economies of scale associated with larger ships.

5. Restrictive channel widths limit ship passage to one-way traffic in many reaches and larger container ships require expanded turning basins.

Opportunities

1. The opportunity to bring the forecast volume of goods into the harbor on fewer larger ships providing transportation cost savings;

2. The opportunity to eliminate or reduce navigational restrictions and inefficiencies (i.e., channel depth limitations and one-way transit restrictions) to enable maritime carriers to realize the transportation economies of scale without adversely impacting their shipping operations;

3. The opportunity to reduce the risk of adverse environmental impacts from a new project or protect or improve environmentally sensitive areas in the vicinity of the federal project through potential beneficial uses of dredged material.

4. Determine if beneficial uses of dredged material such as manufactured soils, recycling of dredge material for construction fill, development of artificial reefs, use of dredged material for environmental restoration, or use of beach quality material for placement along adjacent beaches would provide appropriate alternatives for disposal of dredged material.

Planning Goal/Objectives

1. Reduce navigation transportation costs to and from Jacksonville Harbor to the extent possible over the period of analysis.

2. Develop an alternative that is environmentally sustainable for the period of analysis.

3. Reduce the transportation cost of import and export trade through Jacksonville Harbor and contribute to increases in national economic development (NED).

4. Reduce navigation constraints facing harbor pilots and their operating practices including limited one-way traffic in certain reaches.

Planning Constraints

1. Height restrictions of the Dames Point Bridge and Jacksonville Electric Authority power lines limit the air draft of vessels to 174 feet.

2. Geotechnical investigations indicate estimated quantities of rock in almost every cut, which vary from 50 to 100 percent of the estimated quantities of material expected to be excavated. There are concerns about blasting from the home owners living along the St. Johns River and the environmental resource agencies. The home owners have expressed concerns about impacts to their property and the agencies have expressed concerns with water clarity. The project would seek to minimize impacts by placing limitations on when blasting can occur.

3. There is limited capacity at the existing upland disposal facilities. The project would need to examine other means of disposal of dredged material including beneficial uses.

4. Jacksonville Harbor is bordered by several federal and state owned properties such as Fort Caroline National Memorial, and Timucuan Ecological and Historical Preserve, and state lands including a portion of Huguenot Memorial Park, and Nassau- St Johns River Marshes State Aquatic Preserve state parks and preserves. The project will seek to minimize impacts wherever practicable.

5. There are endangered species that exist within the project footprint. The project will seek to avoid impacts wherever practicable.

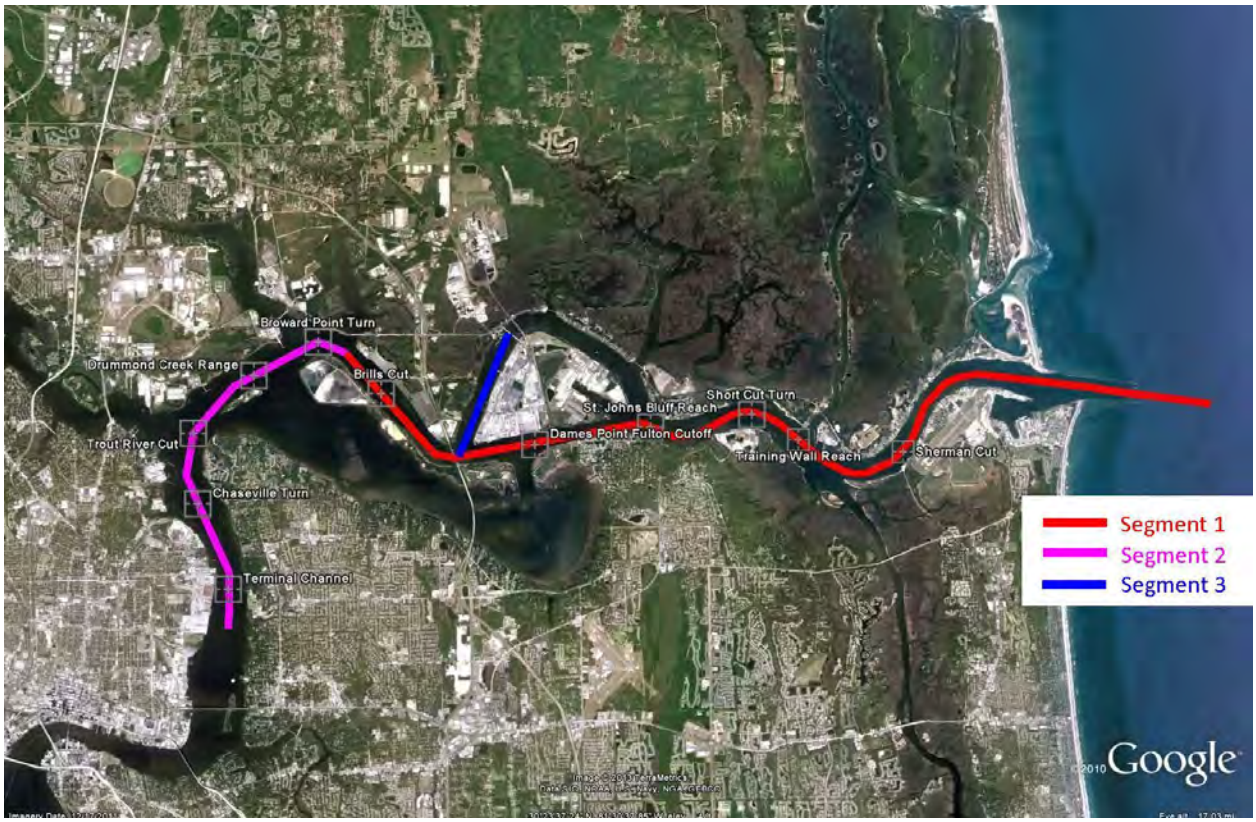
6. Avoid or minimize impacts to environmental resources including essential fish habitat, wetlands, and bird sanctuaries which exist near current upland confined disposal sites and other general navigation features such as training walls.

7. Avoid placement of material on the beaches during the sea turtle nesting season to the maximum extent practicable.

8. Development of available lands adjacent to the harbor limits the selection of potential future areas for use as upland confined disposal sites.

9. Modification of shipping lanes leading into the Jacksonville Harbor limit the availability of existing and future permitted artificial reef sites for offshore disposal.

Channel Segments Used In Plan Formulation



Screening of Measures

Initial Array of Alternative Plans

Alternative plans are made up of structural and/or non-structural measures that function together to address one or more of the study objectives. Alternative plans were formed to improve navigation in the harbor.

(1) No action (required by NEPA).

(2) Deepening Alternatives: Current ship movements in Jacksonville Harbor appear to have an acceptable width. Future vessels are not expected to be significantly larger than those in the existing fleet. In deciding what alternatives to consider for deepening, the location and identification of the

various terminals were necessary along the river. The alternative was formed by combining and expanding on the management measures.

a. Segment 1 was reduced from River Mile 14 (Cut 47) to approximately River Mile 13 (Cut 45). The reason for this is because the benefits end at this point thus deepening beyond this point would provide no additional NED benefits at this time.

b. Deepening Increments from 41 to 50 feet will be carried further for investigation.

(3) Widening Alternatives: The Widening Measures were determined to be required for deepening thus the benefits when combined with deepening are incidental. A stand alone widening alternative was carried forward along with the combined deepening alternatives. The two widening areas in Segment 1 are at the Turning Wall Reach and St. Johns Bluff Reach. Successful meeting in these areas was shown in ship simulation.

a. Turning Basins: There are two Turning Basins that are carried forward for investigation.
b. Blount Island Turning Basin: Located between River Mile 10-11 (Cut 42B)
c. Brills Cut Turning Basin: Located just past the TRAPAC MOL Container Terminal at River Mile 13 (Cut 45)

(4) The non-structural alternatives that were measured include additional tug assists and using the tide to transit the harbor for deeper draft vessels.

Evaluation Array of Alternative Plans

Deepening benefits were computed from 41 to 50 feet in one foot increments. The widening alternative was run independently as well as with the deepening increments. Costs and benefits were run to determine the plan that maximizes net benefits (NED plan).

Final Array of Alternative Plans

ERDC ship simulation took place in 2010 (final report March 2012) and greatly helped to refine the widening measures. A preliminary cost benefit analysis also helped to refine the deepening measures. The analysis showed that the vast majority of benefiting vessels would call in Segment 1, which led to the elimination of Segments 2 and 3 from further study. The widening measures that remain after ship simulation are incidental to deepening, however two reaches offer additional benefits to two-way traffic. Those measures were evaluated separately for added benefits. The following is a list of alternative plans that were evaluated for NED benefits to determine the tentatively selected plan.

Deepening Alternatives Segment 1 (Entrance Channel to ~River Mile 13

Incidental widening benefits from two-way traffic areas at the Training Wall Reach and St. Johns Bluff Reach. Widening in these areas is identified through the ship simulation as necessary for deepening however they do provide additional benefits. Deepen up to 50 feet from existing 40 foot project depth as determined by HarborSym. Two Turning Basins were identified through the ship simulation.

No Action Alternative

Evaluation of Final Array of Alternative Plans

The alternative plans were evaluated using the USACE navigation planning model HarborSym, ship simulation, engineering design, and engineering cost computations. Each increment of deepening was evaluated to determine the changes in cost and benefit.

Channel Segment	River Mile	Measure	Reason Carried Forward
Training Wall Reach	4-5	Widen 100' on Green Side	Ship simulation showed successful two-way meeting
St. Johns Bluff Reach/White Shells Cut	7-8	Widen300' on Green Side	
Segment 1	Entrance Channel to ~13	Deepen up to 50 feet	The majority of benefiting vessels transit this segment, the non-federal sponsor supports this segment
Blount Is. Turning Basin	8-11	Approx. 2672' long by 1500' wide	Ship Simulation showed successful turning
Brills Cut (Cut-45) T. Basin	12-13	Approx. 2500' long by 1500' wide	
Red on Right when Returning from Sea – Red Right Returning. For Jacksonville Harbor the Red Side is the north side of the channel and the Green Side is the south side of the channel.			

The Brills Cut Turning Basin is a new turning basin; there is a local turning basin off of the existing container terminal. This is a separate proposed turning basin and is not an extension of the existing local turning basin.

Comparison of Final Array of Alternative Plans / Decision Criteria

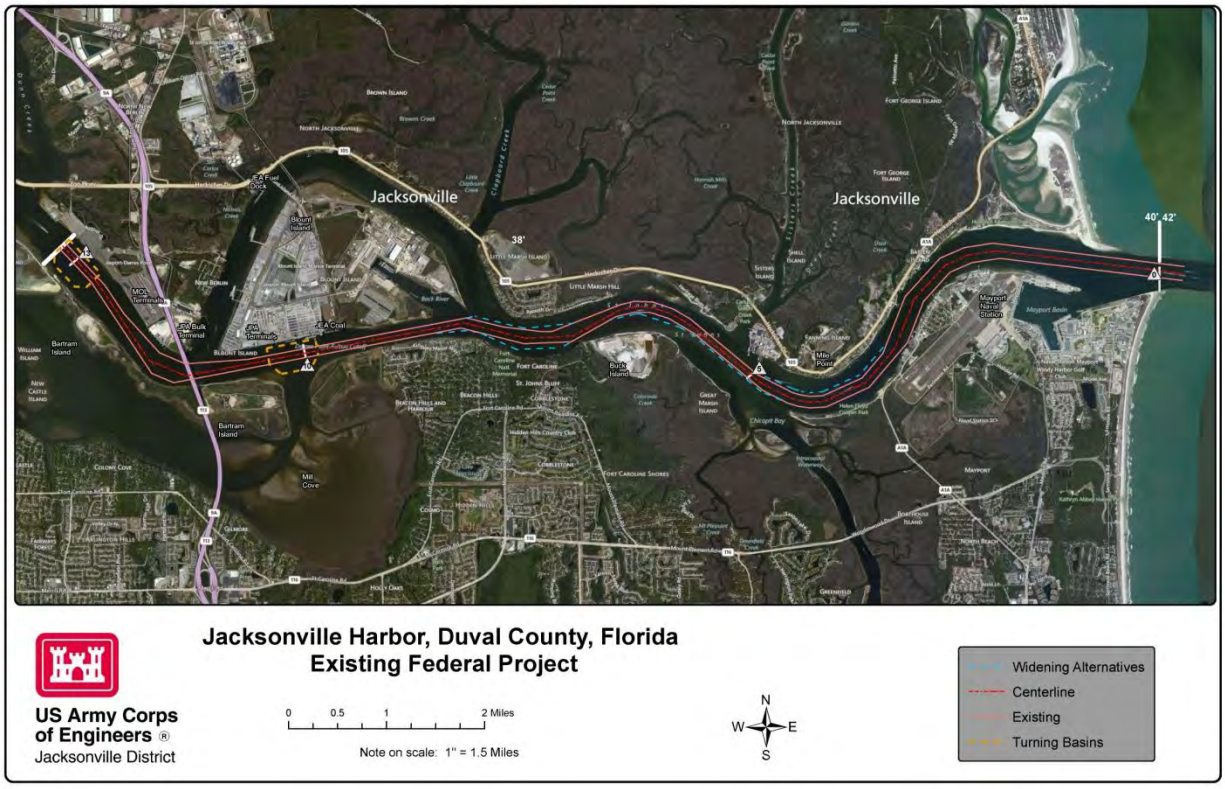
The results of the cost and benefit evaluations are shown in Table 4. Widening of the channel and the turning basin measures are included in each of the deepening alternatives.

Selecting a Recommended Plan

The NED plan has been identified to be 45 feet. This is the depth where the net benefits are the highest. The non-federal sponsor has requested a locally preferred plan (LPP) of 47 feet. There are positive net benefits at this depth. The tentatively selected plan (TSP) is the LPP of 47 feet. In addition to deepening, the two areas of widening at the Training Wall Reach and St. Johns Bluff Reach are recommended. Two turning basins located at Blount Island and Brills Cut were recommended under the

final 2012 ship simulation report and are currently being evaluated using HarborSym. The graphic below outlines the TSP area.

Tentatively Selected Plan (LPP)



The TSP is the LPP of 47-feet. This plan includes deepening from the existing 40-foot channel to 47 feet from the entrance channel to approximately River Mile 13. The following areas of widening are included as part of the new channel footprint for the LPP:

- Mile Point: Widen to the north by 200 feet for Cuts 8-13 (~River Miles (RM) 3-5)
- Training Wall Reach: widen to the south 100 feet for Cuts 14-16 (~RM 5-6) transitioning to 250 feet for Cut 17 (~RM 6) and back to 100 feet for Cuts 18-19 (~RM 6)
- St. Johns Bluff Reach: widen both sides of the channel varying amounts up to 300 feet for Cuts 40-41 (~RM 7-8)

The following turning basin areas are recommended based on the ship simulation results to be included in the TSP.

- Blount Island: ~2,700 feet long by 1,500 feet wide located in Cut-42 (~RM 10)
- Brills Cut: ~2,500 feet long by 1,500 feet wide located in Cut-45 (~RM 13)

STUDY RESULTS AND RECOMMENDATIONS

Study results are summarized below in proposal recommendations where those ideas are captured that could add value during the Pre-construction, Engineering and Design (PED) Phase of project development and the PED Phase Value Engineering Study. Current USACE regulations require anadditional VE Study during the PED Phase.

Idea No.	Description
1	Separate O&M work from new work by doing maintenance contract immediately before the new work contract. Maintenance dredge berthing areas and dispose upland before new work. Then dredge new work and dispose offshore.
2	Develop adaptive mitigation plan for the project and implementation scheme based on meeting certain targets. Make agreements on which mitigation features will be implemented at the start of construction. Incorporate watershed approach as part of mitigation scheme. Install some tri-county nutrient reduction projects or buy some conservation lands and then monitor before determining final amounts and mix
3	Develop Additional Disposal Options - Bartram and Buck Island are identified for unsuitable material for the ODMDS and future O&M as needed. Evaluate additional Options.

APPENDIX A: VALUE ENGINEERING WORKSHOP AGENDAS, May 2011 & January 2013

VALUE ENGINEERING WORKSHOP AGENDA
JAX HARBOR GRR II – FEASIBILITY PHASE
24Jan13
Executive Conference Room 4105

THURSDAY
24Jan13:

Scope: To refine the Tentatively Selected Plan (TSP) in terms of high cost and high risk issues: 1) mitigation options, 2) disposal options, 3) advanced maintenance issues, and 4) other issues. Goal is use CSRA in conjunction with VE to act as a catalyst to launch the team into detailed design and refined costs of TSP.

0900-0930	Introductions and Workshop Purpose – Jimmy Matthews
	VE Process, How it will be used, and Agenda - Jimmy Matthews
0930-1100	*Information Phase:* Presentation of Project Status and Summary of Tentatively Selected Plan (TSP) – Project Delivery Team
	Project background presentation – PDT Site Visit Presentation with Google Earth – Plan Formulation – Mitigation - Project depths and associated added depths - PDT Geotechnical and Geology – Environmental – ▪ Seagrass, Hardbottoms, Manatees Cost Overview – Summary of Project Issues, Risks, Report Risk Register and Constraints – (Mitigation, Material Disposal and Beneficial Use, Advanced Maintenance and Settling Basin Configuration, Jetty Stability Risk Avoidance)
Hourly, as needed	Break
11:00-1200	Lunch
1200-1630	*Complete Creativity; Cost Risk Register PDT Checklist, Initial Risk Register and VE Idea Evaluations :* (Brainstorming – Ideas by PDT/VE Team) – J Matthews, Brian Blake
Hourly, as needed	Break
TBS	*Proposal and Comment Development Assignments*: -
TBS	*Development Phase:* (Start PDT development of priority ideas recommended to be incorporated into BCR Comparison and TSP Selection/Refinement) – Jimmy Matthews

TBS	*Complete Development Phase:* - PDT
TBS	*Summarize Proposals for IPR and Start Presentation Prep:* - PDT
TBS	*Presentation Phase:* Presentation of Workshop Results – PM & PDT
TBS	Draft Value Engineering Study Report submittal to PDT – Jimmy & Samantha
TBS	PDT Comments on Draft Value Engineering Study Report - PDT
TBS	Final Comment Resolution by PDT/VE Team Leader – Jimmy & Samantha
TBS	Submit Final VE Report to PDT (VE Complete) – Jimmy & Samantha

VALUE ENGINEERING STUDY AGENDA FOR
113131 JACKSONVILLE HARBOR GRR2
JACKSONVILLE DISTRICT

CONFERENCE ROOM – 12TH FLOOR, 48-12E

23 May 2011

8:00 – 12:00	**Introductions, VE Study Objectives, Project Team Discussions, and Information Phase/Function Analysis Phase:** PDT Briefing - Project Design Team Discussions - Function Analysis Exercise. **Creativity Phase:** Brainstorming – Project Design Team. **Evaluation Phase:** Critical assessment of Brainstorming - Includes idea assignments for PDT members.

Follow Up Activities:

Suspense --	
TBD June 2011	**Development Phase:** PDT development of priority ideas - usually ~4 to 8 hours. Further assessment and defining of ideas for applications within the project. Prepare VE recommendation proposal or VE comment.
TBD June 2011	Draft VE Report issued to PDT ~ one week following submission of all VE write ups by PDT.
Date to be Determined	**resentation Phase:** Review recommendations from draft VE report by PDT / Questions and Answers – Selection of actions for VE Proposals.

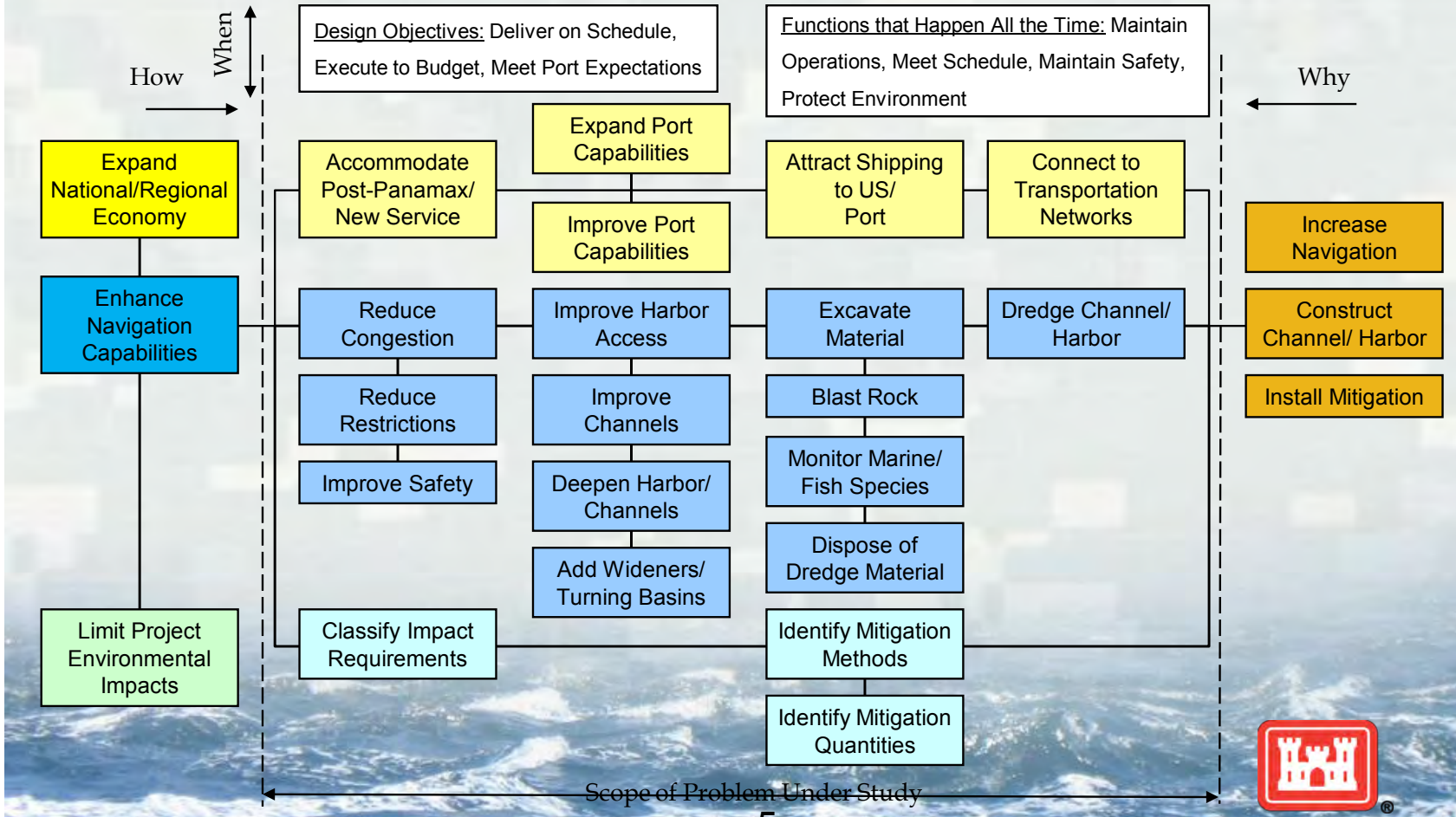
APPENDIX B: WORKSHOP PARTICIPANT ROSTER

113131 JACKSONVILLE HARBOR, GENERAL REEVALUATION REPORT 2, Attendees
24Jan13

No.	**Name**	**Organization**		
1	Jimmy Matthews	EN-Q		
2	Samantha Borer	PD-PN		
3	Brain Blake	EN-TC		
4	Stephanie Groleau	PD-PN		
5	Jose Bilbao	PM-WN		
6	Paul Stodola	PD-EC		
7	Michael Hollingsworth	PD-EC		
8	Jason Harrah	PM-WN		
9	Stephen Myers	EN-GG		

APPENDIX C: FUNCTION ANALYSIS AND F.A.S.T. DIAGRAM

JAX HARBOR GRR II



APPENDIX D: SPECULATION AND EVALUATION

	JAX Harbor GRR 2 Value Engineering Creative Brainstorming Action Items		
	D = Develop Idea; X = Eliminate Idea; C = Comment on Idea, BD=being done; ? = Investigate idea for possible action to develop or eliminate	**Action:**	**Assigned To:**
1	Develop dredged material placement options	BD	Stephanie G.
2	Separate O&M work from new work by doing maintenance contract immediately before the new work contract. Maintenance dredge berthing areas and dispose upland before new work. Then dredge new work and dispose offshore.	D	Steve C., Brian B.
3	Develop adaptive mitigation plan for the project and implementation scheme based on meeting certain targets. Make agreements on which mitigation features will be implemented at the start of construction. Incorporate watershed approach as part of mitigation scheme. Install some tri-county nutrient reduction projects or buy some conservation lands and then monitor before determining final amounts and mix	D	Paul S., Mike H.
4	Develop blast plan and outreach program like Miami Harbor	BD	Steve M.
5			
6			
7			

	D = Develop Idea; X = Eliminate Idea; C = Comment on Idea, BD=being done; ? = Investigate idea for possible action to develop or eliminate	**Action:**	**Assigned To:**
1	Define Geotech dredge material classifications – identify ranges of depths under consideration (classification and quantities of materials and dredge plant equipment/blasting required).	BD	Steve M, Brian B
2	Develop side slope analysis to optimize quantities.	BD	Steve C, Brian B
3	Disposal options (DMMP being developed requires ? MCY for 20 years) - Bartram and Buck Island are identified for unsuitable material for the ODMDS and future O&M as needed.	D	Stephanie G, Steve C, Randy M
4	Mine and remove from Bartram Island.	X	See 3
5	Phase out Bartram and develop Imeson/Bostwick (define initial and future DMMP potential).	X	Stephanie G, Steve C, Randy M
6	Develop near shore placement option – likely pipeline placed below 19' MLLW.	BD	Stephanie G, Steve C, Brian B
7	Develop bottom dump near shore disposal option – first dredge near shore placement site/locations.	BD	See 6
8	Coordinate with surfing interest.	C	Stephanie G
9	Coordinate O&M impact with final depths where depth is reduced.	BD	Steve C, Steve B, Stephanie G
10	Coordinate near shore sand placement as a storm damage reduction benefits (i.e.; extend next cycle for SPP).	X	Steve C ,Matt S, Dan A
11	Evaluate if blasting may require two seasons to be accomplished (potential for reduced or limited size blasting zone of work, types of species of concern).	BD	Steve M, Steve C
12	Confirm overdepth with Port for berth areas.	BD	Steve C, Jason H
13	Reevaluate two turning basins – consider only one at best location.	BD	Idris D
14	Measures to avoid and minimize salinity impacts.	BD	Mike H, Paul S
15	Measures to avoid and minimize dissolved oxygen impacts.	BD	Mike H, Paul S
16	Identify right whale and manatee mitigation measures regarding increased ship traffic	BD	Mike H, Paul S
17	Develop in-kind and out of kind mitigation measures to extend mitigation options.	BD	Mike H, Paul S
18	Develop sonar scanning for species protection during blasting operations.	BD	Paul S
19	Hold two Industry Day meetings – Planning and PED.	BD	Jason H, Steve C
20	Include salinity issues and concerns in Industry Day coordination.	BD	Jason H, Steve C
21	Identify Port coordination moving Hamburg Sud/MSC from Talleyrand to Dames Point.	X	Dick P, Dan A, Idris D
22	Regional sediment can borrow sand from Fort George as out of kind mitigation – benefits water quality.	X	Steve B
23	Integrate Hinterland service area information from NE Florida Logistics Study - increase benefits for project	X	Idris D, Dan A

JACKSONVILLE HARBOR GRR II
CSRA and VE Checklist
24JAN14

PDT Brainstorming Session - CSRA

The PDT brainstorming session is the opportunity to bring the PDT together to qualitatively define the risk concerns as well as potential opportunities.

To lead the PDT through the discussions, an effective approach is to simply work down the PDT risk checklist. This ensures that the each major PDT member is given equal opportunity to address their concerns.

As the concerns are discussed, the facilitator or risk analyst begins developing the initial risk register that supports the CSRA, capturing the PDT's concerns and discussions.

This session can result in revised estimates and schedules.

CSRA PDT Risk Checklist

Provided here is a checklist of risk items for consideration when performing a risk analysis. Consideration of all feature accounts is critically important as presented within the civil works breakdown structure.

FEATURE CODE	DESCRIPTION
01	Lands and Damages
02	Relocations
03	Reservoirs
04	Dams
05	Locks
06	Fish and Wildlife Facilities
07	Power Plant
08	Roads, Railroads, and Bridges
09	Channels and Canals
10	Breakwaters and Seawalls
11	Levees and Floodwalls
12	Navigation Ports & Harbors
13	Pumping Plants
14	Recreation Facilities
15	Floodway Control-Diversion Structures
16	Bank Stabilization
17	Beach Replenishment
18	Cultural Resource Preservation
19	Buildings, Grounds, & Utilities
20	Permanent Operation Equipment
30	Preconstruction, Engineering and Design
31	Construction Management

1. Engineering and Construction Management Risk Document Checklist.

Risk management reports vary depending on the size, nature, and phase of the project. The following are examples of risk management documents and reports that may be useful:

- Risk management plan
- Risk information form
- Risk assessment report
- Risk handling priority list
- Risk handling plan of action
- Aggregated risk list
- Risk monitoring documentation:
  - Project metrics
  - Technical reports
  - Earned value reports
  - Watch list
  - Schedule performance report
  - Critical risk processes reports

2. The following items are a composite of several checklists from various agencies. They have been tailored to better address the more common USACE civil works project risks. The list, though not all encompassing provides a valuable tool, meant to serve as an aid in PDT discussions of potential risk items for a specific project.

Organizational and Project Management Risks

- ❑ Project purpose and objectives are poorly defined
- ❑ Project scope definition is poor or incomplete
- ❑ Project schedule in question
- ❑ No control over staff priorities
- ❑ Project competing with other projects, funding and resources
- ❑ Functional and Technical labor units not available or overloaded
- ❑ Losing critical staff at crucial point of the project
- ❑ Inexperienced or inadequate staff assigned
- ❑ Product development by several sources or entities (virtual or remote efforts)
- ❑ Coordination/communication difficulties
- ❑ Communication breakdown with project team
- ❑ Insufficient time to plan
- ❑ Timely response to critical decisions by PM and/or management
- ❑ A/E/C Consultant or contractor delays
- ❑ Pressure to deliver project on an accelerated schedule
- ❑ Unanticipated project manager workload
- ❑ Internal red tape causes delay getting approvals, decisions
- ❑ Unplanned work that must be accommodated
- ❑ Local agency/regulator issues
- ❑ Priorities change on existing program

LPP may bring additional schedule impacts to fully develop the plan to the same level as the NED plan.
Under the new SMART planning, agency and policy review occurs at the same time as public coordination of the draft report. There may be delays the schedule at this point pending review comments and comments from the public. If the recommendation or the content of the analysis changes significantly from the draft report there may need to be a second public coordination and agency reviews.
May have a challenge to NEPA if the report is sent out incomplete (i.e. not all of the modeling is complete thus the impacts are not fully measured).
DQC including SAJ Legal Certification will occur prior to the report being released to the public. If NEPA materials are missing, will OC still sign off on the Legal Cert.
Fed and non-Federal Funding not certain
Dredged material disposal options have VE opportunities
Project pre-base year schedule needs additional development

Contract Acquisition Risks

- ❑ Undefined acquisition strategy
- ❑ Lack of acquisition planning support/involvement
- ❑ Preference to SDB and 8(a) contracts
- ❑ Acquisition planning to accommodate funding stream or anticipated strategy
- ❑ Numerous separate contracts
- ❑ Acquisition strategy decreasing competition
- ❑ Acquisition strategy results in higher scope risk (Design Build)

Technical Risks

- ❑ Design development stage, incomplete or preliminary
- ❑ Confidence in scope, investigations, design, critical quantities
  - Geotechnical
  - Civil
  - Structural
  - Mechanical
  - Electrical
  - Architectural
  - Environmental
  - Controls
  - Other Specialized Disciplines
- ❑ Design confidence in products by others
- ❑ Consultant design not up to department standards
- ❑ Inaccurate or risky design assumptions on technical issues
- ❑ Innovative designs, highly complex, first of a kind, or prototypes
- ❑ Incomplete studies (geotech, hydrology and hydraulic, structural, HTRW, etc)
- ❑ Surveys late and/or surveys in question
- ❑ Sufficiency / availability of as-built data / base map data
- ❑ Borrow/fill sources identified / secured
- ❑ Sufficiency/condition of borrow / fill sites
- ❑ Right-of-way analysis in question
- ❑ Lacking critical subsurface information for under-water / in-water work
- ❑ Hazardous waste concerns
- ❑ Need for design exceptions or waivers
- ❑ Adaptive Management features (<3% of construction cost, excluding monitoring)
- ❑ Dredge Estimate scope, quantities, equipment
  - Correct dredge equipment decisions (type, size, number)
  - Reasonable productivity (seasonal, environmental, weather)
  - Consideration for adequate pumping for long pipeline runs
  - Adequate disposal facilities in size and number

We will continue to develop the Island Complex alternative for dredge disposal material. If at some time this alternative becomes a better alternative than the ODMDS we can bring it back into the process, may even be in PED. This alternative is included in the DMMP.
Verify RD & OD 1 + 1, may not be operational
Re-visit or confirm bulkhead 25-foot dredging offset
Check berthing area disposal area
Maintenance dredge berthing areas and dispose upland before new work. Then dredge new work and dispose offshore.

Lands and Damages

- ❑ Real Estate plan defined
- ❑ Status of real estate / easement acquisition
- ❑ Objections to right-of-way appraisal take more time and/or money
- ❑ Ancillary owner rights, ownerships in question
- ❑ Freeway agreements
- ❑ Railroad involvement
- ❑ Relocations identified
- ❑ Records / as-built availability / inaccuracies
- ❑ Known and unknown utility impacts
- ❑ Relocations may not happen in time
- ❑ Environmental mitigation needs identified
- ❑ Vagrancy, loitering issues
- ❑ Quality of L&D estimates as "most likely" case
- ❑ Hidden estimate/schedule contingencies

The PDT is in the process of identifying any areas of lands for mitigation that will need to be included. Mitigation Plan is a precursor to completing the RE Plan.
Environmental agencies propose conservation easement; USACE requires complete ownership (FEE). May be an issue with the agencies on how to move forward. If easement will not save time, may move forward with FEE and modify as needed in next phase.
SAD and HQ stated we may be able to get conservation easements, policy issue that will need follow-up. Agency (USACE) decision on how to move forward (i.e. what will be acceptable from a policy stand point).
Possible policy implications to conservation land purchases. The PDT is working with the vertical team.
Future O&M of lands, who would be responsible. This issue the PDT is working with the agencies, would most likely go to the responsible agency for the lands.

Regulatory and Environmental Risks

- ❑ Established requirements for initial project studies and potential impacts
- ❑ Environmental and Water quality issues
- ❑ Adaptive Management features (<3% of construction cost, excluding monitoring)
- ❑ Conforming to the State implementation plan for air quality
- ❑ Historic/Cultural site, endangered species, or wetlands present
- ❑ Project in an area of high sensitivity for paleontology
- ❑ Project in an area of high sensitivity for cultural artifacts
- ❑ Numerous exclusion zones in project area / vicinity
- ❑ Hazardous waste preliminary site investigation required
- ❑ Status of critical environmental and regulatory studies
- ❑ Status of permits
- ❑ Lack of specialized staff (biology, anthropology, archeology, etc.)
- ❑ Reviewing agency requires higher-level review than assumed
- ❑ Permits or agency actions delayed or take longer than expected
- ❑ Reviewing agency requires higher-level review than assumed
- ❑ Potential for critical regulation changes
- ❑ New permits or new information required
- ❑ Project in the Coastal Zone
- ❑ Project on a Scenic Highway, state or national park
- ❑ Hazardous wildlife attractants on or near airports (FAA involvement)
- ❑ Negative community impacts expected
- ❑ Pressure to compress the study and permitting activities

In-Kind mitigation may not be possible.
Additional time to complete modeling will reduce the uncertainty of the cost estimate for mitigation (may increase or decrease however the uncertainty would be greatly reduced). Right now our estimate is in the middle of the curve.
Permits are unlikely to be obtained during the feasibility phase. Other studies much less controversial were unable to complete this during the feasibility phase. The PDT will continue to work this issue. Potential schedule impacts if not done during NEPA. Pull WQC out of this process and go through clearing house as previously done.
Mitigation plan in PED to meet certain targets. Make agreements on what will be done prior to construction. Real Estate would need the mitigation plan prior to PED, thus may not be possible to move this to PED.
Cultural resources outside existing project footprint. No issues anticipated.
Air quality is underway. Limited risk. No red flag issues have come up to date.
Modeling is taking longer than anticipated. Results of the modeling are critical to assessing the impacts.
Project impacts eelgrass beds, water quality has an effect on eelgrass, improve water quality (nutrient reduction) positive effect on eelgrass. New EPA water quality standards for nutrients have been set.
Yes project is in a coastal zone and is subject to CZM. This ties into WQC and addressed concurrently.
Use watershed approach as part of mitigation scheme.
Develop adaptive management implementation scheme for project implementation. Install some tri-county nutrient reduction projects or buy some conservation lands and them monitor before determining final amounts and mix
Develop blast plan and outreach program like Miami Harbor

Construction Risks

- ❑ Accelerated contract schedule
- ❑ Inefficient contractor
- ❑ Subcontractor capabilities
- ❑ Conflicts with other contracts
- ❑ Innovative project construction
- ❑ Timely delivery of critical GFE
- ❑ Permits, licenses, submittal approvals
- ❑ Permit and environmental work windows
- ❑ Environmental restrictions (equipment use, exhaust, paint fumes)
- ❑ Site access / restrictions (highways, bridges, dams, water, overhead / underground utilities)
- ❑ Adequate staging areas
- ❑ Rural / remote locale
- ❑ Inadequate skilled trades available for labor force
- ❑ Inadequate housing/utilities to support labor force
- ❑ Special equipment and equipment availability
- ❑ Material availability and delivery
- ❑ Productivity of critical work items
- ❑ Critical fabrication and delivery
- ❑ Unknown utilities
- ❑ Survey information
- ❑ Limited transportation / haul routes available
- ❑ Transportation / haul routes constricted or unusable during periods of time
- ❑ Unusual transportation haul distances
- ❑ Regulatory / operational work windows or outage periods
- ❑ Restricted schedule, accelerated schedule impacts
- ❑ In-water work
- ❑ Control and diversion of water
- ❑ Differing site conditions
- ❑ Unidentified hazardous waste
- ❑ Historic change order or modification growth
- ❑ Consideration for standard weather impact
- ❑ Adequacy of construction schedule depicting durations, sequencing, phasing, production rates

Appropriations uncertainties: The magnitude of the cost and construction schedule (will take multiple years) increase the uncertainty that the appropriations will be available for construction when needed to complete the schedule.
Multiple contracts: current estimate 2015-2020, may be too aggressive based on estimates from other FL ports with less material and distance.
Restrictions of permits and environmental work issues due to right whales and other T&E species. The dredging window will be affected and may affect the construction duration.
May be environmental restrictions on equipment, monitoring may be required.
Productivity of critical work items may be affected by environmental windows and weather.
Variation of estimated quantities (VEQ) may be issue of survey information.
Construction schedule may be affected by appropriations.

Separate O&M work from new work by doing maintenance contract immediately before the new work contract. Has definite savings.

Estimate and Schedule Risks

- ❑ Estimate captures scope for all project features
- ❑ Estimate developed for current scope and design level
- ❑ Estimates developed in MCACES MII and/or CEDEP
- ❑ Estimate quality related to lesser designed features
- ❑ Estimate excludes contingency and escalation
- ❑ Estimate(s) quality when developed by others
- ❑ Estimate confidence in large and critical quantities
- ❑ Estimate include waste / drop off quantities
- ❑ Estimate reflects local market for labor and subsistence
- ❑ Estimate reasonableness of crews and productivities
- ❑ Estimate reflects local material costs and delivery
- ❑ Parametric estimates for unit prices adequate for critical items
- ❑ Consideration and local quotes for special equipment (cranes, barges, tugs, diving)
- ❑ Prime and subcontractor structure matches likely acquisition strategy
- ❑ Adequate schedule depicting all project features
- ❑ Schedule matches PED plan
- ❑ Schedule portrays critical construction features, matching estimate productivity
- ❑ Schedule depicts logical construction sequencing, phasing and parallel activities
- ❑ Estimate and schedule reflecting “most likely” occurrence
- ❑ Overall confidence in estimate and schedule

PDT will need to develop logical construction sequencing, phasing, and parallel activities to provide to cost engineering for the estimate.

External Risks

- ❑ Adequacy of project funding (incremental or full funding)
- ❑ Priorities change on existing program
- ❑ Local communities pose objections
- ❑ Loss of public trust / goodwill
- ❑ Political factors change at local, state or federal
- ❑ Stakeholders request late changes
- ❑ New stakeholders emerge and demand new work
- ❑ Influential stakeholders request additional needs to serve other purposes
- ❑ Political opposition / threat of lawsuits
- ❑ Stakeholders choose time and / or cost over quality
- ❑ Market conditions and bidding competition
- ❑ Unexpected escalation on key materials
- ❑ Labor disruptions
- ❑ Acts of Nature (seismic events: volcanic activity, earthquakes, tsunamis; or severe weather: freezing, flooding or hurricane)

Port director is interim, may change direction when permanent director is hired.
NGO or public challenge to project is possible. The PDT will continue to coordinate bi-monthly with the public and monthly with the agencies.

APPENDIX F: RECOMMENDATION DOCUMENTATION

JAX HARBOR GRR 2 CSRA-VE STUDY RECOMMENDATION

RECOMMENDATION #1: Separate O&M work from new work by doing maintenance contract immediately before the new work contract. Maintenance dredge berthing areas and dispose upland before new work. Then dredge new work and dispose offshore.

Team Members. *ETL and EN-TC.*

CURRENT ISSUE OR PROBLEM: All maintenance material that lies above the existing authorized project depth will be removed along with the new work construction material and hauled to the ODMDS for disposal under a deepening contract.

PROPOSED IMPROVEMENT: It may be possible that a maintenance dredging contract executed just prior to a construction dredging contract could utilize the upland disposal areas for the material and be performed for less overall cost than the having the same material be dredged under the construction contract with ODMDS disposal. Other avenues for potential savings include more competition for maintenance contracts vs. new work, more opportunity for beneficial use such as sand in nearshore or on the beach, and small business opportunities with smaller equipment. One drawback may be the additional contract preparation costs and additional mobilization.

Another way to approach this issue may be to allow for some material (equivalent to the amount identified in the DMMP) to be placed in the upland sites during the construction contract(s). This could be either maintenance, new work material, or both.

ACTIONS AND ACTIVITIES TO IMPLEMENT: To be fully developed in the PED phase or better yet just prior to PED Phase after Report completion. A pricing comparison would need to be performed for a reach or reaches to determine if configuring a maintenance contract separately could be beneficial.

JUSTIFICATION: (required, cost avoidance,)

What is the value (strategic and/or financial) of closing the gap between 'Current' and 'Future' condition or issue?

What is the financial benefit – the quantified value of the project ($$$)?

RECOMMENDATION #2: Develop adaptive management plan for the project and implementation scheme based on meeting certain targets. This plan should describe mitigation success criteria, monitoring criteria for project induced salinity impacts, and what steps are to be taken should modification of the mitigation plan be warranted.

As is stated in Appendix G of the draft report; In general, adaptive management is a formal process for continually improving management policies and practices by learning from their outcomes (Taylor et al., 1997). For this project, adaptive management is defined as evaluating the accuracy of the predicted environmental impacts and assessing the effectiveness of the mitigation features to ensure the levels of environmental effects predicted in the Draft Supplemental Environmental Impact Statement (DSDSEIS) are not exceeded.

The definition of adaptive management has two components. There is a corresponding goal for the adaptive management program for each of those components. The first component consists of evaluating the accuracy of the predicted environmental impacts. The corresponding goal is to improve the predictive capability of the models used to identify and quantify project-induced impacts. This includes both the hydrodynamic and ecological models. The EFDC hydrodynamic and salinity model, validated for the Jacksonville Harbor Deepening Study, provided the means to assess the direct impacts of channel modifications to salinity and water circulation in the main stem of the Lower St. Johns River (LSJR) (see hydrodynamic modeling report in Appendix A). The ecological models for the LSJR describe, in various formats, predictive relationships between salinity or water age and characteristics of five LSJR ecological components: wetland vegetation, submerged aquatic vegetation, benthic macroinvertebrates, fish and plankton as described in the ecological modeling report (Appendix D).

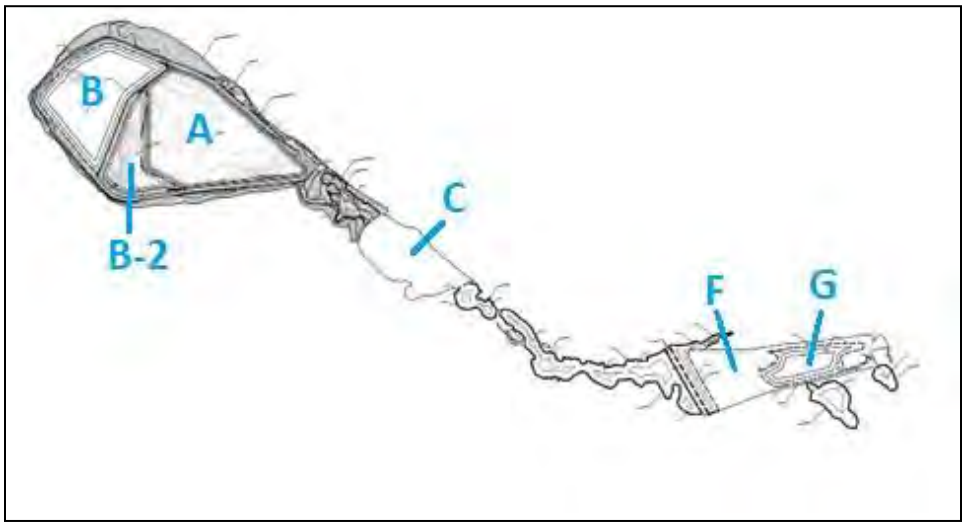
The second component consists of assessing the effectiveness of the mitigation features. Here the goal is to identify how effective the constructed mitigation feature is at compensating impacts. Physical parameters would be monitored within the estuary that describes how the system is functioning with the project in place. Biota would also be monitored to determine the system's biological responses to those parameters. After post-construction monitoring data is available, the updated models would be rerun using the observed conditions. This would provide the basis for the model's predictions for conditions under the observed conditions. Those predictions would be compared to the observed physical parameters to determine the accuracy of the models and the effectiveness of the mitigation features.

Preliminary disposition: under development in the current report, Appendix G.

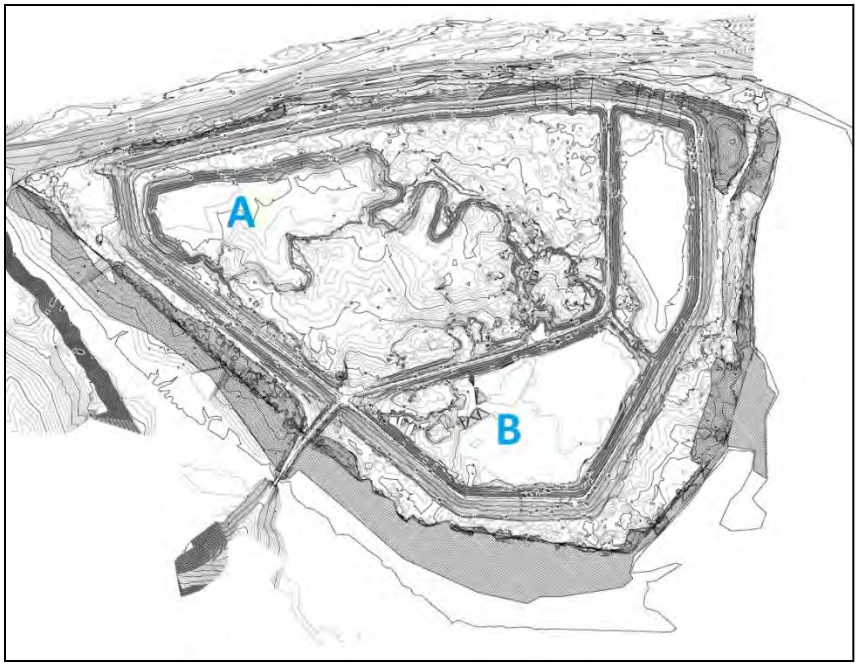
RECOMMENDATION #3: Develop Additional Disposal Options - Bartram and Buck Island are identified for unsuitable material for the ODMDS and future O&M as needed. Evaluate additional Options.

Current Upland Disposal Locations

Bartram Island Cells



Buck Island Cells



Preliminary disposition: Evaluated under existing DMMP for the study, will continue to evaluate options during the PED phase.